

Two new species of *Anthurium* sect. *Urospadix* (Araceae) for Brazil

Duas novas espécies de Anthurium sect. Urospadix Engl. (Araceae) para o Brasil

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Abstract

Two new species of *Anthurium* are described for Brazil, *Anthurium cipoense* Temponi endemic of the Serra do Cipó National Park, Minas Gerais and *Anthurium polynervium* Temponi & Nadruz, endemic to municipality of Santa Maria Madalena, Rio de Janeiro state. Both have restricted distributions and studies on their conservation are needed. Descriptions, illustrations and commentaries on geographic distribution, ecology, phenology and conservation status are provided for both species.

Key words: taxonomy, Minas Gerais, Rio de Janeiro.

Resumo

Duas espécies novas de *Anthurium* são descritas para o Brasil, *Anthurium cipoense* Temponi, endêmica do Parque Nacional da Serra do Cipó, MG e *Anthurium polynervium* Temponi & Nadruz, endêmica do município de Santa Maria Madalena, RJ. Ambas apresentam distribuição restrita e estudos sobre a sua conservação se fazem necessários. São fornecidas diagnoses, ilustrações e comentários sobre distribuição geográfica, ecologia, fenologia e estado de conservação das espécies aqui apresentadas.

Palavras-chave: taxonomia, Minas Gerais, Rio de Janeiro.

Introduction

Anthurium Schott is neotropical and has 1100 species, being the larger Araceae genus (Mayo *et al.* 1997, Govacrts & Frodin 2002, Coelho & Catharino 2008). Those species are distributed from northern Mexico and the Greater Antilles to southern Brazil and northern Argentina and Uruguay, occurring in open or forested habitats. They may be terrestrial, epiphyte or rupicolous (Mayo *et al.* 1997). Brazil, with about 130 *Anthurium* species, is a country with great diversity in this genus (Coelho *et al.* 2010).

Anthurium is divided into 18 sections (Croat & Sheffer 1983), some of which have been revised and re-circumscribed (e.g. Croat 1991). *Anthurium* sect. *Urospadix* was interpreted differently by Engler (1878, 1898, 1905) and Croat & Sheffer (1983, 2002), but according to these authors, the section has a disjunct distribution, with several species

in Central America and western South America, and others in the eastern Brazil.

Based on morphological and molecular studies, Temponi (2006) proposes the re-circumscription of *Anthurium* sect. *Urospadix*, restricting this group to 60 species of usually ground herbs, with short internodes, up to 0.5 cm long, simple leaves, with brochidrodome venation and interprime veining, trichomes usually present at the funiculus and distribution restricted to eastern Brazil.

During the survey of this group of *Anthurium* sect. *Urospadix* Engl. Brazilian species, two new species were recognized and are described here. Since they are species of local occurrence and few populations, they are considered to be vulnerable according to the IUCN criteria (2010), and studies on their preservation are therefore required.

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Material and Methods

To perform this study, samples of *Anthurium cipoense* and *Anthurium polynervium*, as well some closed species were examined in the BHC, MO, K, RB, SP, SPF herbaria (acronyms in accordance with Thiers 2010). The morphological description of the vegetative and reproductive structures followed terminology presented in Madison (1977), Radford *et al.* (1974), Croat & Bunting (1979), Mayo (1991) and Mayo *et al.* (1997).

Anthurium cipoense Temponi, *sp. nov.* Type: BRAZIL. MINAS GERAIS: Santana do Riacho, Parque Nacional da Serra do Cipó, 19°16'1.2"S, 43°33'5.5"W, elev. 1,220 m. 22.XII.2004, fr., Temponi *et al.* 384 (holotype SPF!; isotype K!, RB!).

Figs. 1a-c, 2a-d

Anthurium cipoense Temponi *sp. nov.* *Anthurium megapetiolatum* E.G. Gonçalves. *habitu terrestri, foliorum laminae nervis in paginam adaxialem insculptis affinis, sed petiolo breviori (nec longo), foliorum lamina anguste elliptica usque elliptica (nec oblonga usque oblongo-elliptica), nervis secundariis paucis (nec ultra 14 utroque costae latere), floribus paucis in quoque spira manifestis (nec multior) differt.*

Terrestrial. Erect stem; short internodes, totally covered by the syllaptic prophylls and mesophylls; brownish, persistent, entire prophylls and mesophylls. Leaf with slightly reddish, cylindrical to slightly adaxially furrowed petiole, 18–30.9 × 0.15–0.3 cm; geniculum 0.4–2.1 cm long, thicker, concolor slightly lighter than the petiole; erect, chartaceous, strongly discolored greenish leaf blade, narrowly elliptical to elliptical, acute apex, obtuse base, 19–27.3 × 4.8–11.1 cm; adaxially acute, abaxially obtuse primary veins; secondary veins strongly prominent adaxial, 7–9 on both sides; collecting veins 0.5–1.5 cm away from the margin; no basal veining. Inflorescence with erect, vinaceous, cylindrical peduncle, 25.5–43 × 0.12–0.15 cm; vinaceous, deflexed spathe, forming an acute angle at the junction with the peduncle, decurrent leaf 0.6 cm long, 3 × 0.4 cm; spadix, 5.3–17.4 × 0.63–1.45 cm, shortly stipitate, stipe 0.3 cm long, 4–5 flowers at the primary spiral, 3 at the secondary spiral; tepals 1.8–2.2 × 1 mm, stamens 1.5–2 × 0.7–0.8 mm, apocarp 1.9 × 1.65 mm, brown stigma, bilocular ovary, one ovule per locule, axile-apical placentation. Green berries with vinaceous apex.

Anthurium cipoense is related to *Anthurium megapetiolatum* E.G. Gonçalves, and they share the

same terrestrial habit and strong veining on the adaxial side; however, it differs from the latter species by having a short petiole, no longer than 32 cm, narrowly elliptical to elliptical leaf blade, with 7–9 secondary veins on both sides and 4–5 flowers on the primary spiral and 3 on the secondary spiral; while *A. megapetiolatum* has a long petiole, up to 81 cm in length, oblong to oblong-elliptical leaf blade, with 14–18 secondary veins on both sides and 4–9 flowers on the primary spiral and 4–5 on the secondary spiral of the spadix.

The specific epithet honors the collection site, Serra do Cipó National Park, which is home to outcrops and also to areas with still unexplored riparian forest, where forest interior species such as *A. megapetiolatum* (Gonçalves, 2001) and *A. cipoense* are still being discovered and described.

Anthurium polynervium Temponi & Nadruz, *sp. nov.* Type: BRAZIL. RIO DE JANEIRO, Santa Maria Madalena, Macuco to Santa Maria Madalena roadway, near the cloverleaf interchange to São Sebastião do Alto, 22°0'14.04"S, 42°41'23.99"W, 24.VII.2006, fl. and fr., Temponi *et al.* 429 (holotype RB!; isotype SPF!, K!, MO!). Figs. 1d-f, 2e-g

Anthurium polynervium Temponi & Nadruz *sp. nov.* *Anthurium augustino* K. Koch & Lauche *affinis, sed foliorum lamina lanceolata, oblonga usque elliptica (nec ovato-lanceolata), nervis basalibus 1–2 (nec 3), nervis secundariis 17–26 (nec 24–30) differt.*

Terrestrial, rupicolous, saxicolous. Erect stem; very short internodes, totally covered by the prophylls and mesophylls; greenish prophylls and mesophylls, entire when young, becoming brown, decomposed in a fibrous mass, persistent from the apex to the stem base. Leaf with greenish petiole, cylindrical to slightly adaxially furrowed when young and furrowed cylindrical, with adaxially obtuse margins in adult individuals, 19.5–43.8 × 0.22–0.56 cm; thicker geniculum, concolor and slightly lighter than the petiole, 0.4–2.1 cm long; erect, chartaceous, discolored greenish, lanceolate, oblong to elliptical leaf blade, with acute apex, shortly apiculate, subcordate base, with slightly decurrent blade, spatulate posterior lobes 1/15–1/56 of the blade length, 25.1–61.5 × 7–20.8 cm; obtuse to rarely adaxially acute primary veins on both faces; secondary veins visible only adaxially, slightly abaxially prominent, 17–26 on both sides; collecting veins emerging over the blade base, 0.5–1.3 cm from the margin; 1–2 basal veins on

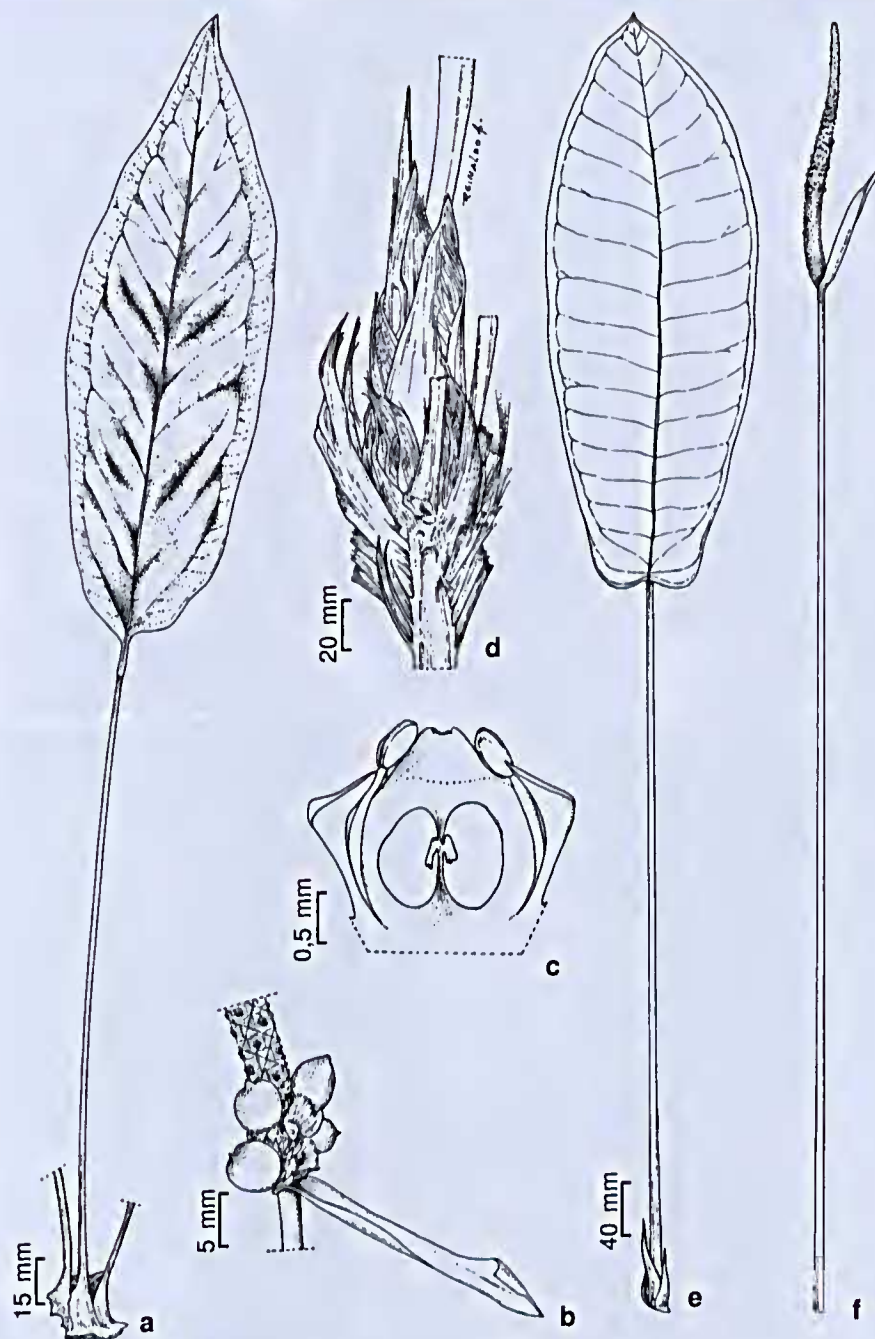


Figure 1 – Two new species of *Anthurium* sect. *Urospadix* Engl. (Araceae) for Brazil. a-c. *Anthurium cipoense* Temponi (Temponi 384) – a. leaf with few secondary veins, sunken above, collective veins 0.5–1.5 cm from the margins and absence of basal veins; b. spadix with berries mature exerted from tepals; c. 2-locular ovary, one ovule per locule, axile-apical placentation near apex of septum. d-f. *Anthurium polynervium* Temponi & Nadrusz (Temponi et al. 356) – d. erect stem; very short internodes, persistent mesophylls and prophylls at upper internodes, decomposing in brown fibers; e. erect leaf blade, sharp apex, shortly apiculate, sub-cordate base, numerous secondary veins and basal veins 1–2 on both sides; f. spadix with erect peduncle and spadix sessile.

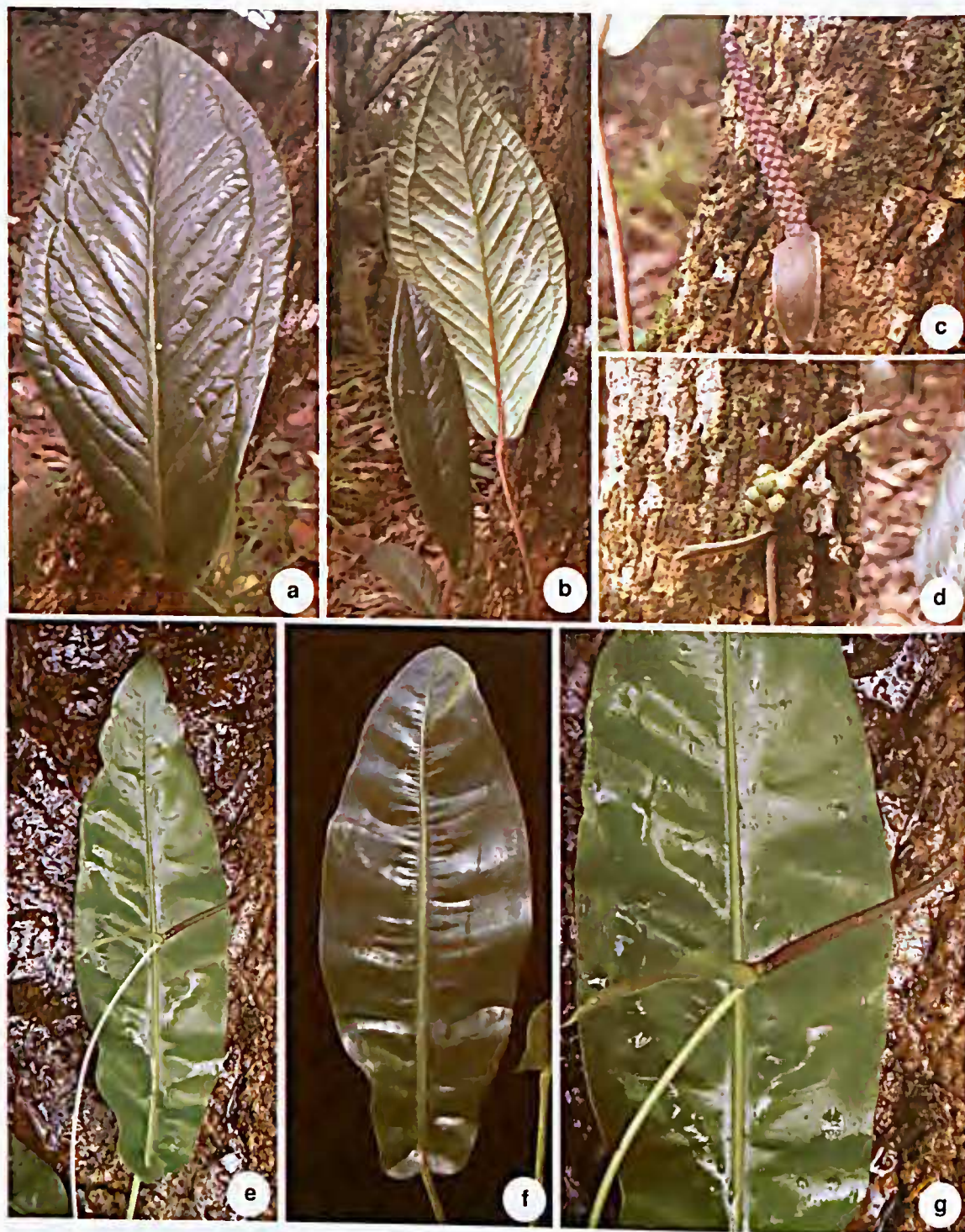


Figure 2 – Two new species of *Anthurium* sect. *Urospadix* Engl. (Araceae) for Brazil. a-d. *Anthurium cipoense* Temponi – a. leaf with few secondary veins, suken above; b. light green leaf down, purple petiole and midrib; c. spadix at floration; d. spadix at fruition. e-g. *Anthurium polynervium* Temponi & Nadruz – e. blade creet; f. blade with apex acute, shortly apiculate, sub-cordate base; g. spadix sessile.

both sides, the outermost extending to the base of the posterior lobe, the innermost ending at the margin of the leaf blade lower quarter. Inflorescence with erect, greenish, cylindrical to slightly flat peduncle, $21.5\text{--}74.4 \times 0.2\text{--}0.24$ cm; greenish to vinaceous spathe, forming a right, obtuse to acute angle with the peduncle, decurrent leaf 0.6 long, $5.4\text{--}11.7 \times 0.8\text{--}1.3$ cm; sessile, greenish to vinaceous stipitate, $5.3\text{--}17.4 \times 0.63\text{--}1.45$ cm; 8–9 flowers on the primary spiral, 6 on the secondary spiral; hooded tepals with rough walls, side tepals slightly concave and dorsally acute; front and rear tepals strongly ventrally concave and dorsally sub-carinate to earinate, 1.1–1.5 mm; stamens $1.6\text{--}1.9 \times 0.5\text{--}0.8$ mm; apocarp $1.3 \times 0.8\text{--}1.1$ mm, inconspicuous stigma, oblong, bilocular ovary, one ovule per locule, axile-apical placentation. Creamy-green berries with dark purple apex.

Species endemic to the state of Rio de Janeiro, occurring only in the Santa Maria Madalena municipality, between 756 and 964 m altitude, in dense rain forest. This is an ombrophilous and rare species. Collected with flower and fruit in October. **Material examined:** BRAZIL, RIO DE JANEIRO: Santa Maria Madalena, cultivado no Jardim Botânico do Rio de Janeiro, 28.IX.2005, M. Nadrusz 1644 (RB); $22^{\circ}0'2.88''\text{S}$ $42^{\circ}7'0.98''\text{W}$, 17.VI.2004, fl. and fr., Temponi *et al.* 356 (SPF); Fazenda Dubois, $21^{\circ}56'53''\text{S}$ $41^{\circ}59'29''\text{W}$, 28.X.2004, fl. and fr., J.M. Braga 7511 (RB).

Anthurium polynervium is related to *Anthurium angustinum* C. Koch & Laeche by having a lanceolate, oblong to elliptical leaf blade, 1–2 basal veins and 17–26 secondary veins, while *A. angustum* has an ovate-lanceolate leaf blade, 3 basal veins and 24–30 secondary veins.

The specific epithet refers to the large number of secondary veins on both sides; although being only adaxially visible, slightly abaxially prominent, the large number of secondary veins gives a wavy appearance to the leaf surface.

The diversity of *Anthurium* sect. *Urospadix* species in Brazil has been verified in recent studies. Over the past 20 years, 23 new species have been described (Sakuragui & Mayo 1999; Coelho & Mayo 2000; Mayo *et al.* 2000; Sakuragui 2000; Gonçalves 2001; Coelho & Leoni 2004; Coelho & Catharino 2005; Coelho & Croat 2005; Gonçalves 2005; Coelho 2006; Coelho & Catharino 2008; Gonçalves & Jardim 2009; Catharino & Coelho 2010). Moreover, nine species are being described for Bahia and Espírito Santo, totalling 32 recently discovered species for *Anthurium* sect. *Urospadix*, a section almost exclusive to the Atlantic Forest.

Since this is a group of probably recent diversification, specific differences are usually small. Less widely used characteristics for the distinction of species of other *Anthurium* sections, such as primary veining shape, habit, internode length, color and degree of decomposition of cataphylls and prophylls (Coelho *et al.* 2009), as well as anatomical characteristics of the leaf and spathe (Mantovani *et al.* 2010), have proven to be important for the recognition of these species. Thus, taxonomic studies must continue, to include population studies, since the diversification of the group suggests an adaptation to different micro-environments of eastern Brazil.

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